REMARKS

Attached hereto is a marked-up version of the changes made to the specification by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By _____
Raymond R. Tabandeh
Reg. No. 43,945
626/795-9900

RRT/dah

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

On page 1, line 1, immediately below the title of the invention, the paragraph has been changed as follows:

CROSS-REFERENCE TO RELATED APPLICATION

This is a continuation of Application No. 08/837,025, filed April 11, 1997, which is a continuation-in-part of Provisional Patent Application Nos. 60/022,826, filed July 26, 1996, and 60/015,648, filed April 19, 1996, and U.S. Patent Application Serial No. 08/537,650, filed on October 2, 1995, the complete disclosures of which are incorporated herein by reference.

DAH PAS408008.1-*-1/14/02 12:19 PM

O-1449

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Attorney Docket Number	**32534/RRT**
Application Number	08/837,025
Filing Date	April 11, 1997
Applicant(s)	Steven M. Schein, et al.
Group Art Unit	2714
Examiner Name	Stephen Boughner

U.S. PATENT DOCUMENTS

EXAMINER INITIALS	DOCUMENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
LL	5,570,295	10/1996	Isenberg et al.	364	514R	

FOREIGN PATENT DOCUMENTS

EXAMINER INITIALS	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS

EXAMINER INITIALS	Include name of the author (in CAPITAL LETTERS), title of the article, title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.

EXAMINER SIGNATURE	Linus H. Lo	DATE CONSIDERED	1/17/00

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Attorney Docket Number	**32534/RRT**
Application Number	08/837,025
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EXAMINER INITIALS	DOCUMENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

EXAMINER INITIALS	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
LL	WO 95/01059	01/1995	PCT International				
LL	WO 95/10910	04/1995	PCT International				

OTHER DOCUMENTS

EXAMINER INITIALS	Include name of the author (in CAPITAL LETTERS), title of the article, title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
LL	ROGERS, "Telcos vs. Cable TV: The Global View," 09/1995, Report/ Alternative Carriers, Data Communications, No. 13, New York, pp. 75, 76, 78, 80.

EXAMINER SIGNATURE	LINUS H. L.	DATE CONSIDERED	10/06/00

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Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

#10.

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DSZ PAS185648.1-*-5/13/99 8:07 am

Paper # 3

PTO-1449 (Modified)

IST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT
(Use several sheets if necessary)

Attorney Docket No. 014774-004410	Serial No.: 08/837,025
Applicant: Schein, et al.	
Filing Date: April 11, 1997	Group: 2602

Reference Designation — U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Appropriate)
STB A1* ✓	5,155,591	10/1992	Wachob	348	9	
STB A2* ✓	5,465,113	11/1995	Gilboy	348	5.5	
STB A3* ✓	5,523,796	06/1996	Marshall, et al.	348	589	
STB A4* ✓	5,534,911	07/1996	Levitan	348	1	
STB A5* ✓	5,359,367	10/1994	Stockill	348	552	
STB A6* ✓	5,223,924	06/1993	Strubbe	348	7	
STB A7* ✓	5,481,296	01/1996	Cragun, et al.	348	13	
STB A8* ✓	5,600,364	02/1997	Hendricks, et al.	348	1	
STB A9 ✓	5,502,504	03/1996	Marshall, et al.	348	589	
STB A10 ✓	4,787,063	11/1988	Muguet	386	83	
STB A11 ✓	5,469,206	11/1995	Strubbe, et al.	348	7	
STB A12 ✓	5,483,278	01/1996	Strubbe, et al.	348	7	
STB A13 ✓	5,353,121	10/1994	Young, et al.	348	563	
STB A14 ✓	5,479,266	12/1995	Young, et al.	386	83	
STB A15 ✓	B1 4,706,121	12/1993	Young	348	27	
STB A16 ✓	5,335,277	08/1994	Harvey, et al.	380	20	

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub-class	Translation (yes/no)
STB B1 ✓	WO 95/28055	10/19/95	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER [signature] DATE CONSIDERED 5/4/99

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449

PATENT & TRADEMARK OFFICE

Paper #7

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

DOCKET NO. 32534/LTR	ATTY.	APPLICATION NO. 08/837,025
APPLICANT Steven M. Schein, et al.		
FILING DATE April 11, 1997	GROUP 2714	

Group 2700

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIAT
STB	B1 4 7 0 6 1 2 1	12/14/93	Young	~~358~~ 348	~~142~~ 27	
STB	4 7 8 7 0 6 3	11/22/88	Muguet	~~361~~ 356	~~908~~ 83	
STB	5 3 3 5 2 7 7	08/02/94	Harvey et al	380	20	
STB	5 3 5 3 1 2 1	10/04/94	Young et al	348	563	
STB	5 4 6 9 2 0 6	11/21/95	Strubbe et al	348	7	
STB	5 4 7 9 2 6 6	12/26/95	Young et al	~~358~~ 386	~~335~~ 83	
STB	5 4 8 3 2 7 8	01/09/96	Strubbe et al	348	7	
STB	5 5 0 2 5 0 4	03/26/96	Marshall et al	348	~~565~~ 589	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATIC YES	N
STB	WO9 5 2 8 0 5 5	10/19/95	PCT Publication				

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages, etc.)

STB 5/11/99	Instruction Manual *Using StarSight 2* - Published before 4/19/95 (Not attached because it was attached to the application)
STB 5/11/99	*StarSight Interactive Television Program Guide* - Jim Leftwich, Willy Lai & Steve Schein - Published before 4/19/95 (Not attached because it was attached to the application)

EXAMINER	DATE CONSIDERED
	5/11/99

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14/14-0540005

PTO-103X
(Rev. 8-95)

FILING RECEIPT

UNITED STATES PARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

D6B

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
08/537,650	10/02/95	2602	$2,046.00	14774-34	7	48	10

VERN NORVIEL
TOWNSEND AND TOWNSEND AND CREW
STEUART STREET TOWER
ONE MARKET PLAZA 20TH FLOOR
SAN FRANCISCO CA 94105

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

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FOREIGN FILING LICENSE GRANTED 03/25/96
TITLE
TELEVISION SCHEDULE SYSTEM

PRELIMINARY CLASS: 348

(see reverse)

Attorney Docket No. 14774-34

PATENT APPLICATION

TELEVISION SCHEDULE SYSTEM

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TELEVISION SCHEDULE SYSTEM

BACKGROUND OF THE INVENTION

The present invention relates to a system for providing television schedule information, and more particularly to an interactive computer system which provides television schedule information.

Systems are available for providing television schedule information to a user. For example, U.S. Patent No. B1 4,706,121 (Young), provides a television schedule system and process. The system disclosed in the Young patent receives television schedule information as a broadcast. In one embodiment of Young, the television schedule information is provided on the user's television screen. The user can then supply selection criteria which are utilized by the Young system to make program selection, to control the television schedule information displayed on the television screen, etc. In addition, Young discloses a system which controls a television receiver to allow for the automatic user selection of programs and the automatic, unattended recording of programs that are listed in the television schedule information. The automatic, unattended recording of programs is achieved by controlling a video tape recorder (VCR) or other recording device. Young also proposes utilizing a personal computer for the television schedule information.

SUMMARY OF THE INVENTION

The present invention includes an interactive computer system which provides television schedule information. All or portions of this television schedule information may be provided to a television system. The interactive computer system can use the television schedule information to control various peripheral devices in the television system. Peripheral devices are, for example, televisions, video tape recorder(s), set-top boxes (including cable boxes), and the like. In the preferred embodiment, a memory located within a personal computer stores a computer program and received data.

These data include the television schedule information. A processor uses the computer program to organize the television schedule information into a desired format. The television schedule information is then displayed on a television screen or on a computer monitor/display in the desired format.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates a computer system coupled to a television system;

Fig. 2 shows an example of a television schedule guide as displayed on a computer screen along with a user input device;

Fig. 3 illustrates a computer accessory for the computer system;

Fig. 4 illustrates a recording device connector for the television system;

Fig. 5 illustrates a process flow chart for the installation procedure;

Fig. 6 illustrates a process flow chart for the operation of the schedule/control system herein; and

Fig. 7 illustrates several arrangements for providing television schedule information from a database to a television for display.

DESCRIPTION OF SPECIFIC EMBODIMENTS

The present invention provides an interactive computer system which assists a user in utilizing television schedule information. In the preferred embodiment, the user can (1) display television schedule information in a desired format on the computer or television screen, (2) select a desired program which is listed in the television schedule information for automatic tuning, and (3) select one or more desired programs which are listed in the television schedule information for automatic, unattended recording. To provide this functionality in the preferred embodiment, the present invention includes a computer system and a television system.

Fig. 1 illustrates a computer system coupled to a television system. In the preferred embodiment, computer

system 10 includes standard computer 12 which is, for example, any available personal computer (e.g., IBM compatible, Macintosh, and the like). Computer 12 can also be located within a set-top box (e.g., a DSS box). Computer 12 contains hard drive 14 and processor 16. These units 14 and 16 are usually, automatically included in computer 12. Disk input 18 is used to provide computer 12 with various, additional software. User input 20 allows a user to interact with computer 12 and/or the television schedule guide. Line 23 is connected to an available serial, parallel or other data port 23 on computer 12. This line 23 is used to connect other devices/components to computer 12.

Television system 30 includes television 32 which may be any commercially available television. Television system 30 may or may not include a video tape recorder (VCR). In this embodiment, VCRs 34 and 36 are coupled to television 32. These VCRs 34 and 36 can be, for example, any commercially available VCRs or any other type of recording device (analog or digital). User interface device 40 allows a user to interact with, for example, television 32, VCR 34, and/or VCR 36. User interface device 40 can be, for example, a remote control or a voice activated interface. Line 37 is used to connect other devices to VCR 34. Other devices can also be connected in series between VCR 34 and television 32 via line 38. Computer 12 (or computer system 10) and television 32 (or television system 30) can be located in different rooms within a private residence or a commercial building.

In the preferred embodiment, a computer program provided on diskettes, a CD ROM or other medium contains the software needed for receiving, organizing and displaying data for the television schedule guide. These diskettes are inserted in disk input 18 and the software for these diskettes is stored within computer 12 on hard drive 14 or on another mass storage location. This action can be performed by, for example, the user or a serviceperson. The computer program can also be provided, for example, via downloading from a satellite 24, transmission through the internet or other on-line service, or transmission through another type of land line

television within computer system 10 or television system 30 can be used as computer screen 50.

The user, via input device 60, can scroll throughout the television schedule information provided in the grid guide. User input device 60 can be, for example, a keyboard with arrow keys, a computer pointing device (e.g., a mouse) or a voice recognition input. By utilizing user input device 60, a user can sort, mix, and do a special customized line-up of channels within the television schedule guide displayed on computer screen 50. In addition, the user can automatically tune to a desired program or can select different programs for automatic recording. For more information on automatic tuning and automatic recording, see U.S. Patent No. B1 4,706,121 and U.S. Patent Application No. 08/423,411; this patent and this patent application are, like the present patent application, assigned to Starsight Telecast, Inc. U.S. Patent No. B1 4,706,121 and U.S. Patent Application No. 08/423,411 are hereby incorporated by reference in their entirety for all purposes.

In another embodiment of the present invention, the computer 12 is equipped with a television/video board that contains a tuner. When this television/video board is located in computer 12, a computer user can view selected television programs/shows on computer monitor 50. Therefore, when a user selects a television program for automatic tuning, the television/video board is tuned to the channel carrying the selected television program such that the selected television program is automatically displayed on computer monitor 50.

In the embodiment of the present invention shown in Fig. 1, two programs provided at the same time can be automatically recorded because two VCRs 34 and 36 are present. The user need only select two programs for recording and the present invention will automatically cause the programs to be recorded when they are aired in an unattended fashion. The user can also directly select which device or devices will be recording or tuning for each selected program. For example, the user may wish to have **M.A.S.H.** 62 recorded by VCR 34 and **I LOVE LUCY** 64 recorded by VCR 36. In this example, the computer software on hard drive 14, at the program start time,

(1) tunes VCR 34 to the channel carrying **I LOVE LUCY**, (2) turns VCR 34 "on", and (3) activates the record function on VCR 34. If **I LOVE LUCY** starts at the same time as **M.A.S.H.**, the software also, at approximately the same time, (1) tunes VCR 36 to the channel carrying **M.A.S.H.**, (2) turns VCR 36 "on", and (3) activates the record function on VCR 36. At the program end time for **M.A.S.H.**, the software turns "off" the record function, and then turns "off" VCR 34. The same sequence takes place for VCR 36 when the program end time for **I LOVE LUCY** occurs.

In the preferred embodiment, two electronic devices are used to provide the schedule/control system herein. These two electronic devices allow for the interaction between computer system 10 and television system 30. The first electronic device is a computer accessory and the second is a video tape recorder controller/connector (VCR connector). The second electronic device can also be a television connector, set-top box connector and the like.

Fig. 3 illustrates a computer accessory for the computer system. Computer accessory 70 is any external hardware capable of controlling television 30, VCR 34 and/or VCR 36. In the preferred embodiment, computer accessory 70 is connected to computer 12 through available serial, parallel or other port 23. Clock 72, located within computer accessary 70 in the preferred embodiment, maintains current time. Battery 74 provides a continuous supply of power when the computer accessory's regular available power is not present. Memory 76 contains the key parameters needed for recording and/or tuning to a selected television program. These parameters include the date of the program, the start time for the program, the end time for the program, the television channel providing the program, and which peripheral device shall be addressed for recording or viewing the program.

Processor 80, also located within computer accessory 70, uses the software in the computer system to provide memory 76 with these key parameters. Memory 76 is a random access memory (RAM) and RF transmitter 78 is, for example, similar to a transmitter provided in a portable

telephone or RF wireless headphones. RF transmitter 78 may be substituted with, for example, IR emitters, modulated light signals (i.e., signal sent through optical fibre), or even a hardwire connection. In the preferred embodiment, RF transmitter 78 is used in conjunction with a remotely located VCR connector 90 to communicate parameters needed for automatic tuning and/or automatic recording to television system 30. Processor 80 uses clock 72 and memory 76 to provide the information needed for transmission by RF transmitter 78.

Fig. 4 illustrates a recording device connector for the television system. In the preferred embodiment, recording device (e.g., VCR) connector 90 is coupled to VCR 34 in television system 30, via line 37. This connector 90 can also be a television connector which is connected to television 32. VCR connector 90 contains RF receiver 94 which receives the information transmitted from RF transmitter 78. Infrared (IR) driver 96 then works in conjunction with IR driver 96 and IR emitter 98 to provide any necessary signals to other peripheral devices within television system 30. Processor 99 assists with this process.

For example, if a user decides to tune the television to a certain program which is presently available or to schedule the television to be tuned to a certain program at a future time, the user moves the cursor with user input device 60 to the desired show within computer screen 50 and enters it ("enter" key with a keyboard or "clicking" with a mouse). The information is provided to computer accessory 70 via line 23 and then automatically transmitted via RF transmitter 78 to RF receiver 94. IR driver 96 and IR emitter 98 then take the information from RF receiver 94 and immediately tune the television 32 to the channel providing the selected television program. More than one IR driver 96 may be used for the present invention. For example, one IR driver may be used for television 32, and another IR driver may be used for VCR 34. In addition, computer accessory 70 and VCR connector 90 (or the alternative devices which provide their functions as described below) can be located in different rooms within a private residence or a commercial building.

If the user has selected a program from the computer for recording on VCR 34, at the selected program's start time, the information for activating and recording on the VCR is automatically sent from RF receiver 94, through VCR connector 90, to VCR 34 via line 37. Thus, in the preferred embodiment, at the start time of the selected program, (1) the VCR is turned "on", (2) the tuner (or an external device) is tuned to the channel carrying the selected program, and (3) the record function of the VCR is activated. Later, when the program end time occurs, the record function of the VCR is turned "off," and the VCR is turned "off." In this arrangement, IR driver 96 and IR emitter 98 are not used.

In the preferred embodiment, when IR driver 96 and IR emitter 98 are used, they act in the same way that a remote control would act to control the other peripheral devices (e.g., television 32, VCR 36, and the like) within television system 30. For example, if two programs occurring at the same time are selected for automatic recording, IR driver 96 and IR emitter 98 are used to (1) tune the tuner on a second VCR to the channel carrying the selected program, etc. For additional information of how an IR emitter can be used to act as a remote control, see U.S. Patent No. 5,151,789 to Young, which is hereby incorporated by reference in its entirety for all purposes.

In another embodiment of the present invention, VCR connector 90 is connected in series between VCR 34 and television 32 via line 38. In this arrangement, IR driver 96 and IR emitter 98 are not needed because information received by RF receiver 94 can be sent to either VCR 34 or television 32 via line 38. For example, line 38 is used to transmit the data for automatic tuning. When a user selects a television program for immediate viewing, a tuning command for changing the television tuner to the channel carrying the desired program is sent from RF transmitter 78 to RF receiver 94. Processor 80 then sends this tuning command from RF receiver 94 to television 32 via line 38.

In yet another embodiment of the present invention, IR driver 96 and IR emitter 98 are located in computer

accessory 70 (see Fig. 3). When this configuration is present, VCR connector 90 is not needed. For example, when a desired television program is selected for automatic tuning, IR driver 96 and IR emitter 98 work in conjunction to tune television 32 to the channel carrying the desired program. Similarly, when a desired television program is selected for automatic recording, IR driver 96 and IR emitter 98, at the desired program start time, (1) tune the VCR to the channel carrying the desired program, etc. This arrangement can also be used when multiple desired television programs, airing at the same time, are selected for automatic recording. This is done in the same manner as described above. Also, if desired, the data providing the television schedule information to computer 12 can be organized into a desired format and then transmitted via computer accessory 70 to television 32 for immediate display on television 32. For automatic display on television 32 in this arrangement, computer accessory 70 must contain on-screen display generator (OSD) 82.

In yet another embodiment of the present invention, computer accessory 70 is located inside computer 12 (see RF transmitter 78 location in computer 12, Fig. 1) and/or VCR connector 90 is located inside, for example, VCR 34 or television 32. The location of computer accessory 70 and VCR connector 90 is not critical because the IR emitter allows for remote control of all of the peripheral devices.

In yet another embodiment of the present invention, the components of both computer accessory 70 and VCR connector 90 are located inside computer 12. Therefore, RF transmitter 78 and RF receiver 94 are not required. Computer 12 most likely has an internal battery and clock provided, so battery 74 and clock 74 may not be needed. Memory 76 can be provided by hard drive 14. Processor 80 may not be needed because processor 16 can perform its functions. In this embodiment, IR driver 96 and IR emitter 98 provide the tuning and recording parameters to television 32 and VCRs 34 and 36 (see Fig. 1 for placement of IR driver 96 and IR emitter 98 within computer 12). Similarly, if computer 12

contains television/video board 19 in this arrangement, a selected television program can be viewed on computer screen 50. Additionally, a selected television program can be stored within computer 12 in a memory or mass storage device (e.g., hard drive 14, disk or tape). Thus, no need would exist for the transmission of parameters needed for automatic tuning and automatic, unattended recording, and the associated IR devices 96 and 98 would not be present. Finally computer 12, television 30, VCR 37 and all additional electronic devices could be on a home network. In this arrangement, no transmitters or internal receivers would be necessary.

Fig. 5 illustrates a process flow chart for the installation procedure. This process flowchart reveals the sequence used for installing the computer program needed for receiving, organizing, and displaying the television schedule information grid guide. This installation process flow allows for an account setup and for the downloading of schedule information. The data needed for the television schedule guide are downloaded to hard drive 14 in the preferred embodiment. As stated above, diskettes providing the computer program are placed in disk input 18 and installed on hard drive 14. The user is then asked to input various information. The system first requests the user's zip code at step 110. Billing information is requested at step 120, and method of payment along with associated information for payment is requested at step 130. In an alternative embodiment, billing information (e.g., credit care information or the like) may be input each time a user connects to an on-line service. Additionally, an automatic confirm may take place at step 120. For example, a user may already have an identification number from previous system use. Confirmation of this identification number would allow the system to access stored user profile information which contains the user's billing data.

In the preferred embodiment, modem speed for the communication setup is requested at step 140 (this step is optional). The computer program, in conjunction with processor 16, checks to see if the update time interval is

needed at step 150. The update time interval determines how often the television schedule guide information is updated for the user. For example, updates could take place each time computer 12 is booted-up, once a day, or 4 times a week. If the update time interval is needed, a request is sent to the user at step 160. If the time interval is not needed, a connection to the main site is made at step 170. The main site provides the data needed for the television schedule guide and receives information, such as a credit card number for billing purposes, via line 22. The user can then select which available channels will be displayed on computer screen 50 at step 180. Thus, the user can customize the displayed information at step 180. The user is then asked to input or select IR codes at step 190. These IR codes are used for communicating with peripheral devices within television system 30. In the preferred embodiment, these IR codes are sent to memory 76 within computer accessory 70. The data needed for the television schedule are then downloaded via line 22 at step 200. Processor 16 and the computer program installed on hard drive 14 work in conjunction to create the schedule guide for display on computer screen 50 at step 210.

Fig. 6 illustrates a process flow chart for the operation of the schedule/control system herein. At step 250, the user installs computer accessory 70 by coupling it to computer 12 via available serial or parallel port 23. At step 260, the user installs VCR connector 90 by connecting it to VCR 34 via line 37. At step 270, disk input 18 is used to provide hard drive 14 with the software needed for receiving, organizing and displaying data which provides the system's television schedule guide. This software also supplies the automatic tuning and automatic, unattended recording of the present invention. Thus, this software is taken from diskettes and stored/installed on hard drive 14. At step 280, the user or service person performs the installation/set-up procedure set forth in Fig. 5. At step 290, the data needed for updating the schedule information are received via telephone line 22.

At step 300, the user can input any additional desired display parameters for the display of the television

schedule guide. For example, the user can have certain channels eliminated from the displayed television schedule guide, or the user can select a particular order for each of the television channels within the guide. At step 310, the television schedule guide is displayed, upon user request, on computer screen 50 as shown in Fig. 2. At step 320, the user can enter a selection from the television schedule guide via user input device 60. The user can select a program for either automatic tuning or for automatic, unattended recording. At step 330, the software determines if the time for the automatic tune or record is equal to the present time. If the program start time is not equal to the present time, then the software waits at step 360. If the time equals the present time, then the software performs automatic tuning or automatic recording at step 340. Automatic tuning and automatic recording is set forth in U.S. Patent Application No. 08/423,411, as stated above. The process flow chart of Fig. 6 is then complete.

In another embodiment of the present invention, a computer program located, for example, on hard drive 14 can monitor and track user selections. This computer program can then be used to provide suggested television programs to the user. Additionally, if desired, the computer program can automatically schedule suggested television programs for automatic tuning and/or automatic, unattended recording.

Fig. 7 illustrates several arrangements for providing television schedule information from a database to a television for display. In one embodiment, on-line information providers (Prodigy, America On Line, Compuserve, MSN, AT&T, etc.) provide access to a database which contains the television schedule information. These on-line information providers can transmit data to television 400. In the preferred embodiment, a modem within accessory 402 is utilized to provide the data. Accessory 402 is attached to television 400 and directly connected to telephone line 408 via the modem. The modem for access to the on-line service can also be located within television 400. Software, located either within accessory 402 or television 400, is used to search for and provide the data, along with providing several other features described below.

The available data, displayed on television 400, can emulate what a computer on-line user normally sees when accessing the internet through a personal computer. This television schedule data can also be further enhanced to "tie into" the televisions show that the user is viewing. Alternatively, accessory 402 may be replaced by accessory 422 which is attached to set-top box 420 (e.g., a cable box). The data provided via the on-line information provider is then transmitted to television 400 over line 440. Similarly, accessory 432, attached to VCR 430, can be used to obtain the television schedule data. The data would then be transmitted from VCR 430 to television 400 over line 450.

In another embodiment, the database with the television schedule information is located in memory 406 within television 400. Controller 404 is used to obtain the data from memory 406 so that is can be displayed on television 400. Alternatively, the database with the television schedule information could be located in memory 426 (within set-top box 420) or in memory 436 (within VCR 430). Controller 424 or controller 434 would be used to obtain the data which would then be sent to television 400 for display via line 440 or line 450. Therefore, the technology that enables the television schedule information to be provided from a database to a television for display is not specific to any given data system. In summary, this technology can be resident in the user's set-top box 420, television 400, VCR 430, personal computer or the like.

The television schedule information provided from a database can be used to provide information which is independent of the user's program choice. For example, from a television schedule guide, the user can utilize remote control 410 to press a Services button. This Services button can be located on remote control 410 or within the television schedule guide display. When the Services button is pressed, the user is given choices such as News, Weather, Sports, Scores, Financial Data, Local Traffic, etc. Using remote control 410, the user can then select the area or title of interest, and the associated information from the database is

provided. If accessory 402 is used, a modem accesses the on-line service which provides the information from the database. Once this connection is made, the user has two-way communication with the on-line service provider. The user can then go deeper into the given selections or, if requested and keyboard 462 is available, can access the Internet and enter chat rooms or other interactive services. In the preferred embodiment, keyboard 462 is either an IR keyboard or connected to port 460 on accessory 402.

In yet another embodiment, a television program title and/or a program's content could be linked to an on-line service or to an available database. In this arrangement, a user, in conjunction with the data made available through an electronic program guide (or navigational system), can link, search and select more information relating to specific areas of interest or concerns associated with a program or a program's title. In the preferred embodiment, a user of an electronic program guide (e.g., as described above) can conduct a search for information about a particular program/television show or for information relating to the show, the actors, the actresses, the show's theme, and other related information through selection via a user interface. This linking of program title and/or program content to additional related information could be operable whenever a program title is accessible in a electronic program guide. Additionally, this linking could be available whenever a user requests it via the currently tuned program.

For example, a user previewing the program such as a movie (e.g., "Casablanca") can receive information regarding (1) the actors and actresses in that movie, (2) other movies released during the same time period, (3) associated available products, (4) related travel packages, and (5) advertisements and promotions available through primary, secondary or third party vendors. Utilizing a user interface such as remote control 410 or keyboard 462, the user can indicate to the electronic program guide what information they would like to view on television 400. The electronic program guide then lists a selection of choices for the user. In the preferred

embodiment, the choices are associated with the context of the selected program and can be changed via the electronic program guide supplier. In a specific "Casablanca" example, the choices might be (1) Other Humphrey Bogart Movies, (2) Other Lauren Bacall Movies, (3) Other Movies Released in the Same Era, or (4) Associated Products. The user selects from the presented choices, and the electronic program guide contacts and communicates with the database of available information for more detailed information relating to the user's choice. Once contact and communication is established between the user and the database of available television information, the electronic program guide acts as an agent to assure that the information flow and appropriate data is exchanged. At this point, the user can delve deeper into the available information by selecting from a series of further choices or related topics. For example, if the user chooses (1) Other Humphrey Bogart Movies option, the electronic program guide contacts and communicates with the selected database of available information. The database of available information is then used to collect the requested data of other Humphrey Bogart movies. The selected choice is transmitted and used by the electronic program guide as it's contextual reference for the search. A list with the search results is then displayed on television 400.

Once the user sees the list of other Humphrey Bogart movies, the user can select any of the available titles for recording or watching. In the preferred embodiment, each time the available database is contacted and searched, previously selected movies can be identified. In addition, a user can select certain types of programs to be recorded or watched before any particular program is available to the electronic program guide. Moreover, each time a connection is made to an on-line service, the software can search the database and set the selected types of programs to be recorded. These features enable a consumer to never miss a favorite program.

In another example, a user is viewing a sporting event. If the Services button is pressed, a different menu appears including the following choices: (1) Sports Scores,

(2) Current Game Statistics, (3) Current Player Statistics, and (4) Associated Products. If the user selects (4) Associated Products, the software, for example, accesses the modem within accessory 402 and dials an on-line service provider. The on-line service provider then lists a series of selections associated with the game (e.g., 49er's hats, Giant's Baseball Bats from Louisville Slugger, Nike Spiked Football shoes for Pop Warner, etc.).

The user can also customize specific preferences based on a program title. Through a series of repetitive operations, the electronic program guide can select programs, titles or services that the user would likely be interested in. This can be accomplished through a user interface wherein the user answers preference or choice questions, or through heuristic learning accomplished through the electronic program guide. The electronic program guide would include software for performing this customization.

While a full and complete disclosure of the invention has been provided, it will be apparent to those skilled in the art that various modifications and changes be made.

WHAT IS CLAIMED IS:

1. A television schedule system with television schedule information comprising:

a data input for receiving data;

a memory for storing a computer program, information associated with a computer user and said received data, said information associated with a user being input by the computer user, said data including said television schedule information;

a processor coupled to said memory, said processor capable of using said computer program to organize said television schedule information into a desired format;

a user input for receiving user selections; and

a display for displaying said television schedule information in said desired format.

2. The television schedule system with television schedule information of claim 1, further comprising a computer accessory for transmitting television program associated information to a television system.

3. The television schedule system with television schedule information of claim 1, wherein said information associated with a computer user is utilized for billing purposes.

4. The television schedule system with television schedule information of claim 2, wherein said computer accessory comprises:

a processor;

a clock coupled to processor, said clock maintaining current time;

a battery coupled to said processor, said battery providing a continuous supply of power;

a memory coupled to said processor, said memory storing key parameters needed for selected television programs; and

a transmitter, coupled to said processor, wherein said processor uses said clock and said memory to provide

information for transmission by said transmitter to control said television system.

5. The television schedule system with television schedule information of claim 1, wherein a user input device assists the user in selecting said desired format, and wherein said display is at least one of a computer screen and a television screen.

6. The television schedule system with television schedule information of claim 1, wherein a recording device connector is used for automatic tuning and automatic recording of selected programs.

7. The television schedule system with television schedule information of claim 6, wherein said recording device connector comprises a receiver for receiving information related to selected television programs.

8. A television schedule system with television schedule information comprising:

a television; and

a computer accessory remote from said television, comprising:

a data input for receiving data;

a memory for storing a computer program and said received data, said data including said television schedule information; and

a processor coupled to said memory, said processor capable of using said computer program to organize said television schedule information into a desired format;

wherein said computer accessory transmits said television schedule information in said desired format to said television for display thereon.

9. A television schedule system with television schedule information comprising:

a data input for receiving data;

displaying said organized television schedule information on a computer display in said computer system.

12. The method of providing a computer system with television schedule information of claim 11, wherein said data are received from at least one of a satellite transmission and a land line connection.

13. The method of providing a computer system with television schedule information of claim 12, wherein said land line connection provides network access, and said data is received from a network.

14. The method of providing a computer system with television schedule information of claim 13, wherein said network access provides connection to the internet.

15. The method of providing a computer system with television schedule information of claim 11, wherein a computer program organizes said television schedule information, said computer program being stored in said memory.

16. The method of providing a computer system with television schedule information of claim 11, wherein said desired format is within a grid-like display.

17. The method of providing a computer system with television schedule information of claim 11, wherein a user input device assists the user in selecting said desired format.

18. The method of providing a computer system with television schedule information of claim 17, wherein said user input device is at least one of a keyboard with arrow keys, a computer pointing device and a voice activated interface.

19. The method of providing a computer system with television schedule information as recited in claim 11, further

comprising the step of controlling a television system tuner with said computer system.

20. The method of providing a computer system with television schedule information as recited in claim 19, wherein said step of controlling comprises the step of programming a VCR to record a program selected in said computer system.

21. The method of providing a computer system with television schedule information as recited in claim 11, further comprising the step of controlling a television/video board located within said computer system to display a selected television program on said computer display, said selected television program being selected from said television schedule information displayed on said computer display in said desired format.

22. The method of providing a computer system with television schedule information as recited in claim 11, further comprising the step of automatically storing a selected television program in said memory, said selected television program being selected from said television schedule information displayed on said computer display in said desired format.

23. A method of recording selected programs on a video recorder, comprising the steps of:

installing a schedule program and a control system in a personal computer;

inputting schedule information to said personal computer for use with said schedule program;

selecting a program for recording on said video recorder, said selecting being done with said personal computer; and

transmitting segments of said schedule information with said control system to said video recorder for recording of said selected programs.

24. The method of recording selected programs on a video recorder as recited in claim 23, wherein said inputting is done with a modem which receives said schedule information via the internet.

25. The method of recording selected programs on a video recorder as recited in claim 23, wherein said transmitting step comprises:

transmitting first signals from said personal computer to a television system controller;

storing information for control of said video recorded in said television system controller; and

transmitting several signals from said television system controller to said video recorder for control of said video recorder.

26. The method of recording selected programs on a video recorder as recited in claim 25, wherein said first signals are RF signals.

27. The method of recording selected programs on a video recorder as recited in claim 25, wherein said second signals are IR signals.

28. The method of recording selected programs on a video recorder as recited in claim 23, further comprising the step of displaying said schedule information in a user defined format on said personal computer.

29. The method of recording selected programs on a video recorder as recited in claim 23, wherein said step of selecting comprises the step of scrolling a cursor to a selected position in a grid of television programs.

30. The method of recording selected programs on a video recorder as recited in claim 25, wherein said information for control of said video recorder comprises start time, end time, and channel.

35. The television schedule system with television schedule information of claim 34, wherein said user input is at least one of a remote control and a keyboard.

36. The television schedule system with television schedule information of claim 34, wherein said memory and said processor are located in at least one of a television, a set-top box, and a VCR.

37. The television schedule system with television schedule information of claim 34, wherein an on-line service provides said received data.

38. The television schedule system with television schedule information of claim 37, further comprising an accessory with a modem for connecting one of said television, set-top box, and VCR to said on-line service.

39. The television schedule system with television schedule information of claim 34, wherein said display is a television screen.

40. A television schedule system with television schedule information comprising:

a database for providing data;

a computer program coupled to said database;

a memory for storing said data;

said data including said television schedule information and selection criteria;

a processor coupled to said memory, said processor capable of using said computer program to organize said television schedule information into a desired format, said processor capable of searching for and retrieving information based on user selections;

a user input for receiving said user selections; and

a display for displaying said television schedule information in said desired format, and for displaying said selection criteria.

41. The television schedule system with television schedule information of claim 40, wherein said user input is at least one of a remote control and a keyboard.

42. The television schedule system with television schedule information of claim 40, wherein said memory and said processor are located in at least one of a television, a set-top box, and a VCR.

43. A television schedule system with television schedule information comprising:

a database for providing data;

a computer program coupled to said database;

a memory for storing said data;

said data including said television schedule information and linking data;

a processor coupled to said memory, said processor capable of using said computer program to organize said television schedule information into a desired format, said processor using said linking data to search for and retrieve desired information, said desired information being of a particular type requested by user selections;

a user input for receiving said user selections; and

a display for displaying said television schedule information in said desired format, and for displaying said criteria related to said linking data.

44. The television schedule system with television schedule information of claim 43, wherein said criteria related to said linking data is at least one of news, weather, sports, scores, financial data, and local traffic.

45. The television schedule system with television schedule information of claim 43, wherein said linking data allows a user to receive information related to a specific television program.

46. A method of providing a television system with television information linking, comprising the steps of:

receiving linking data;

storing said linking data;

inputting user selections;

using a computer program, a processor and said linking data to search for and retrieve desired information, said desired information being of a particular type requested by said user selections;

displaying criteria related to said linking data and said desired information.

47. The method of providing a television system with television information linking of claim 46, wherein said criteria related to said linking data is at least one of news, weather, sports, scores, financial data, and local traffic.

48. The method of providing a television system with television information linking of claim 46, further comprising the step of using said desired information to find television programs for at least one of automatic tuning and automatic recording.

TELEVISION SCHEDULE SYSTEM

ABSTRACT OF THE DISCLOSURE

The present invention includes an interactive computer system (10) which provides television schedule information. In the preferred embodiment, a memory (14) stores a computer program and received data. This data includes the television schedule information. A processor (16) uses the computer program to organize the television schedule information into a desired format. A user input (20) is utilized for receiving user selections. A computer or television screen (50) displays the television schedule information in the desired format.

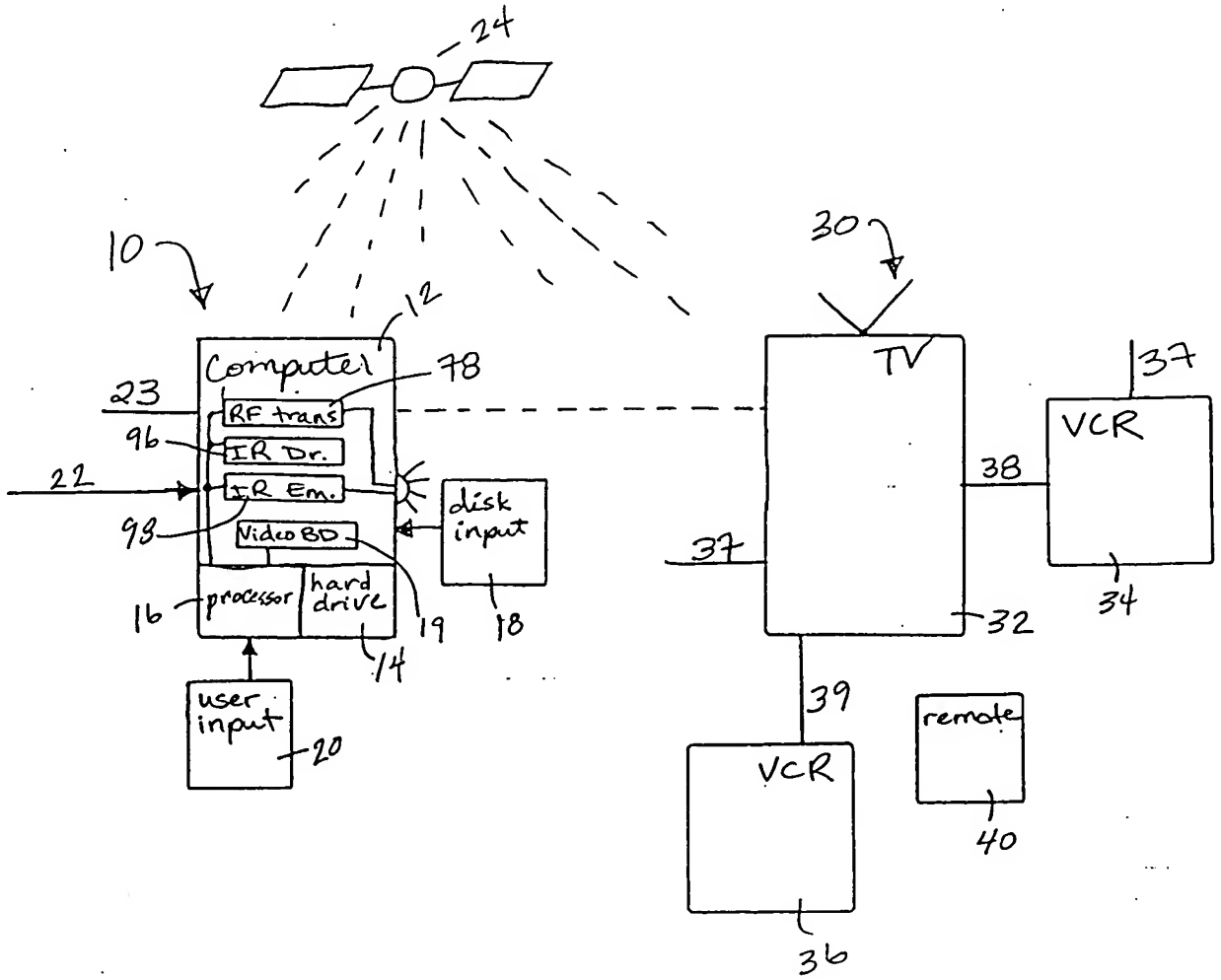

Fig. 1

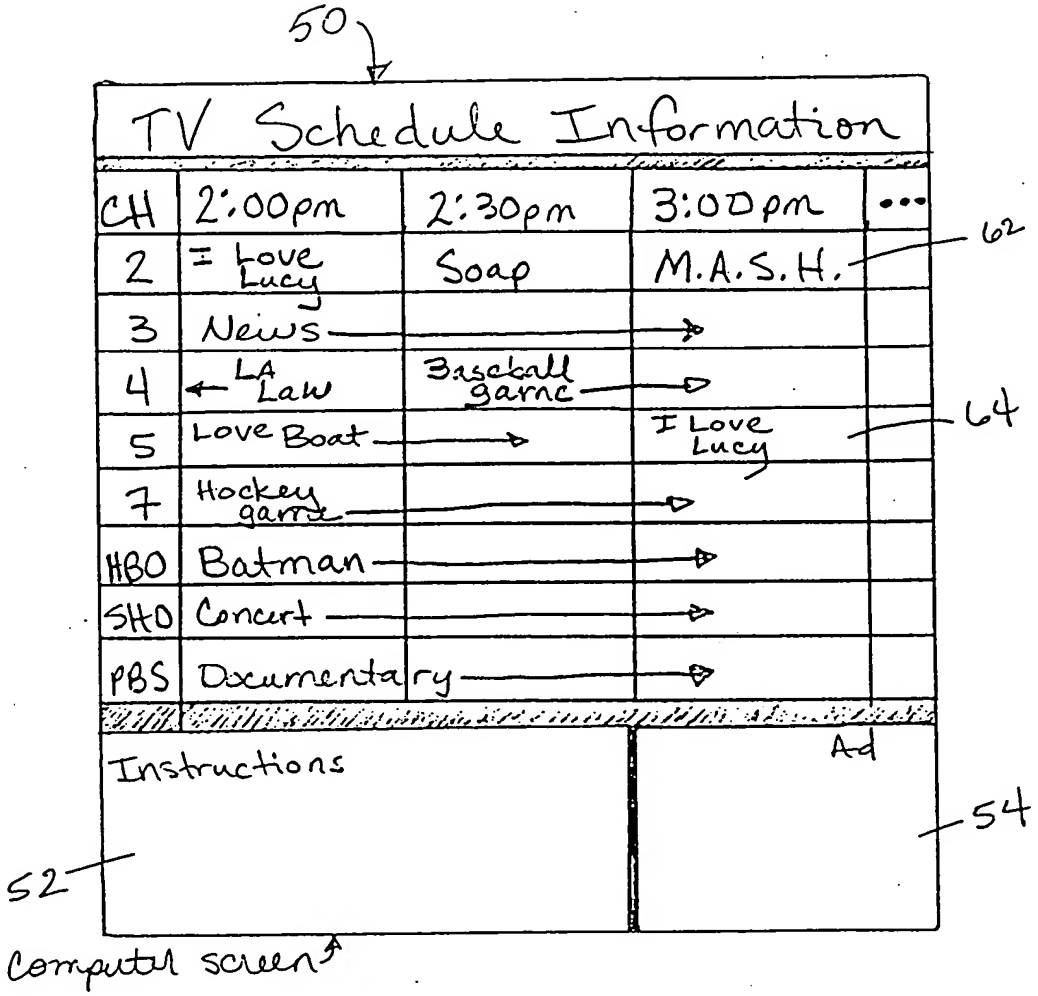

Fig 2

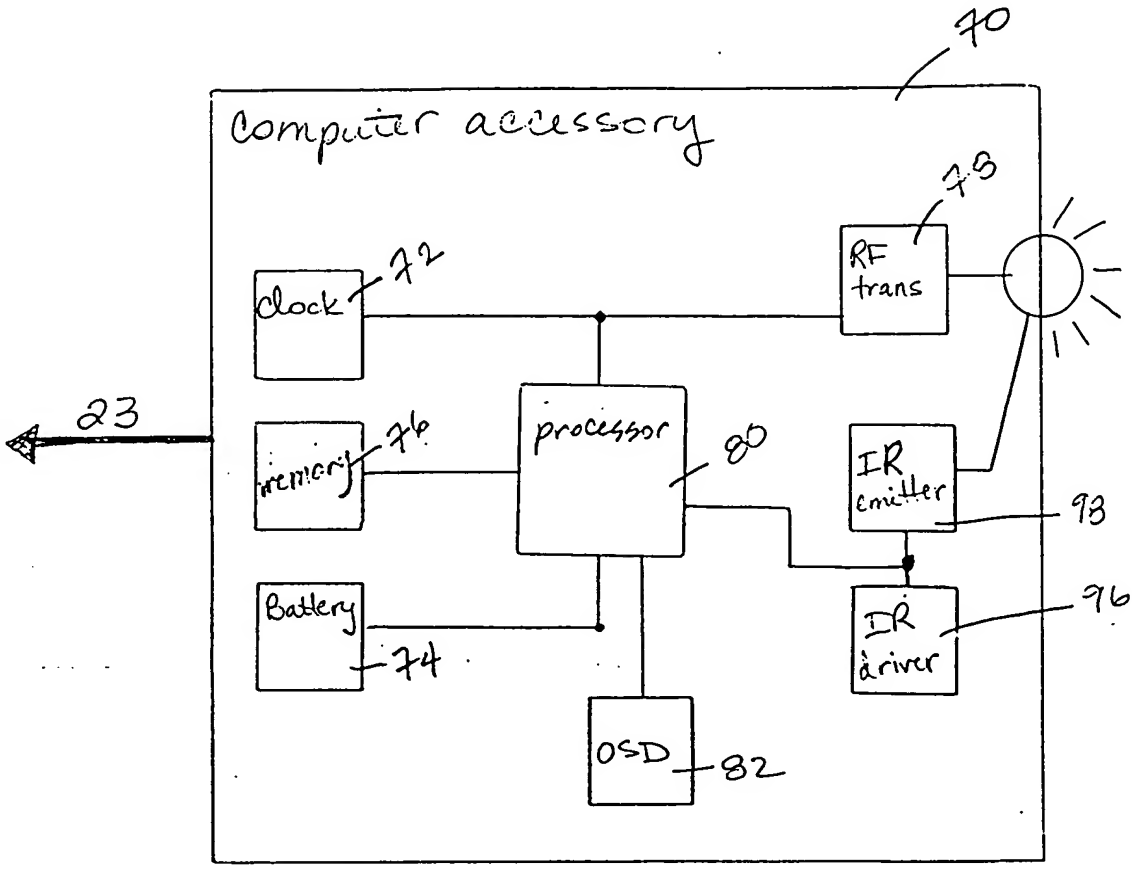

Fig. 3

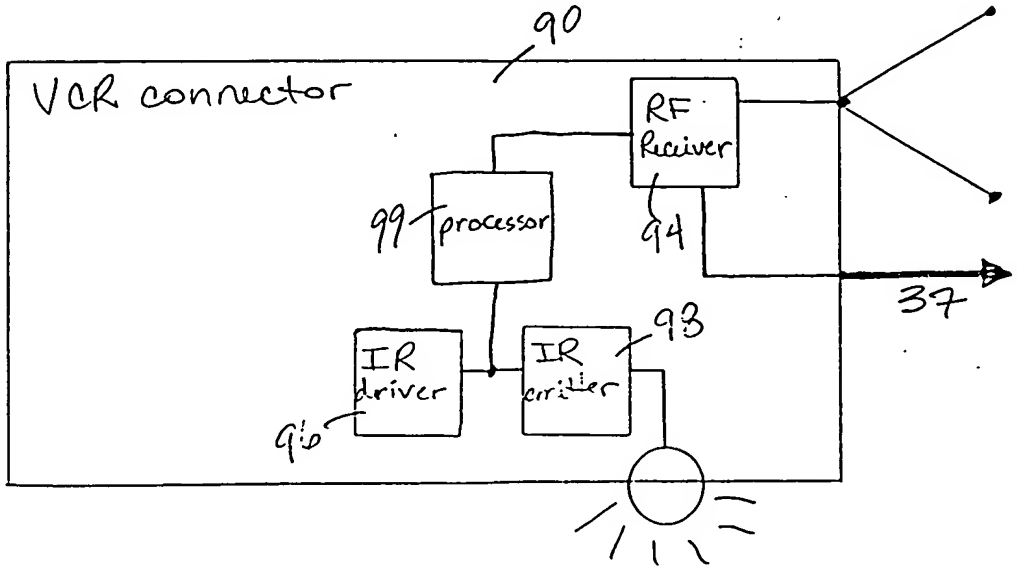

Fig. 4

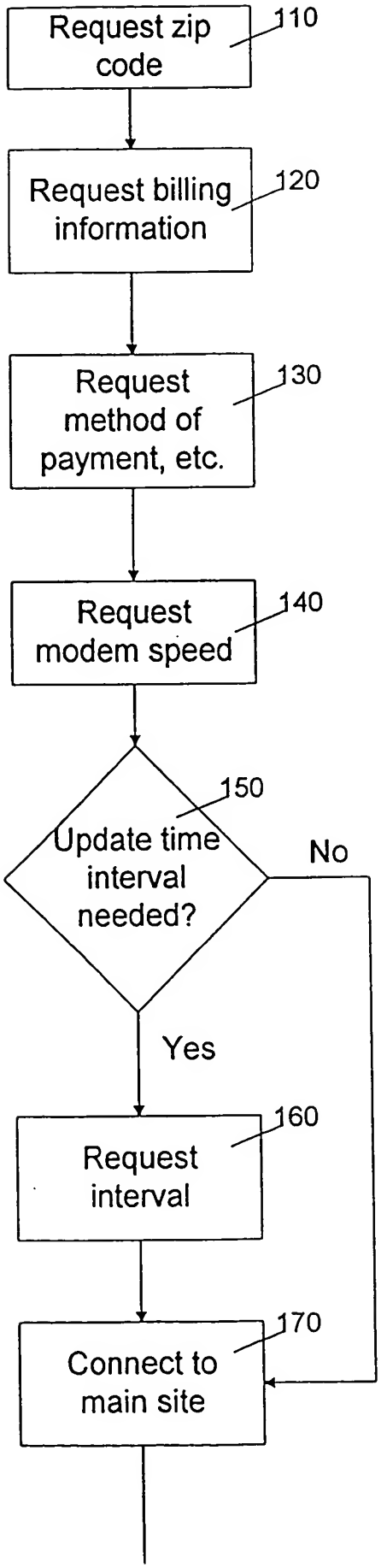
Request zip code
110
Request billing information
120
Request method of payment, etc.
130
Request modem speed
140
Update time interval needed?
150
No
Yes
Request interval
160
Connect to main site
170

Fig. 5A

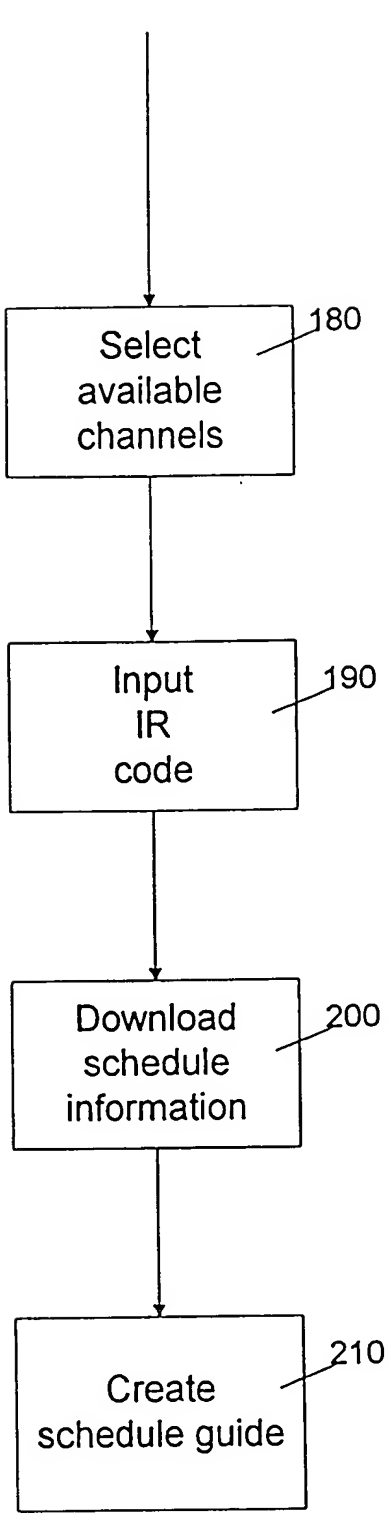
Select available channels
180
Input IR code
190
Download schedule information
200
Create schedule guide
210

Fig. 5B

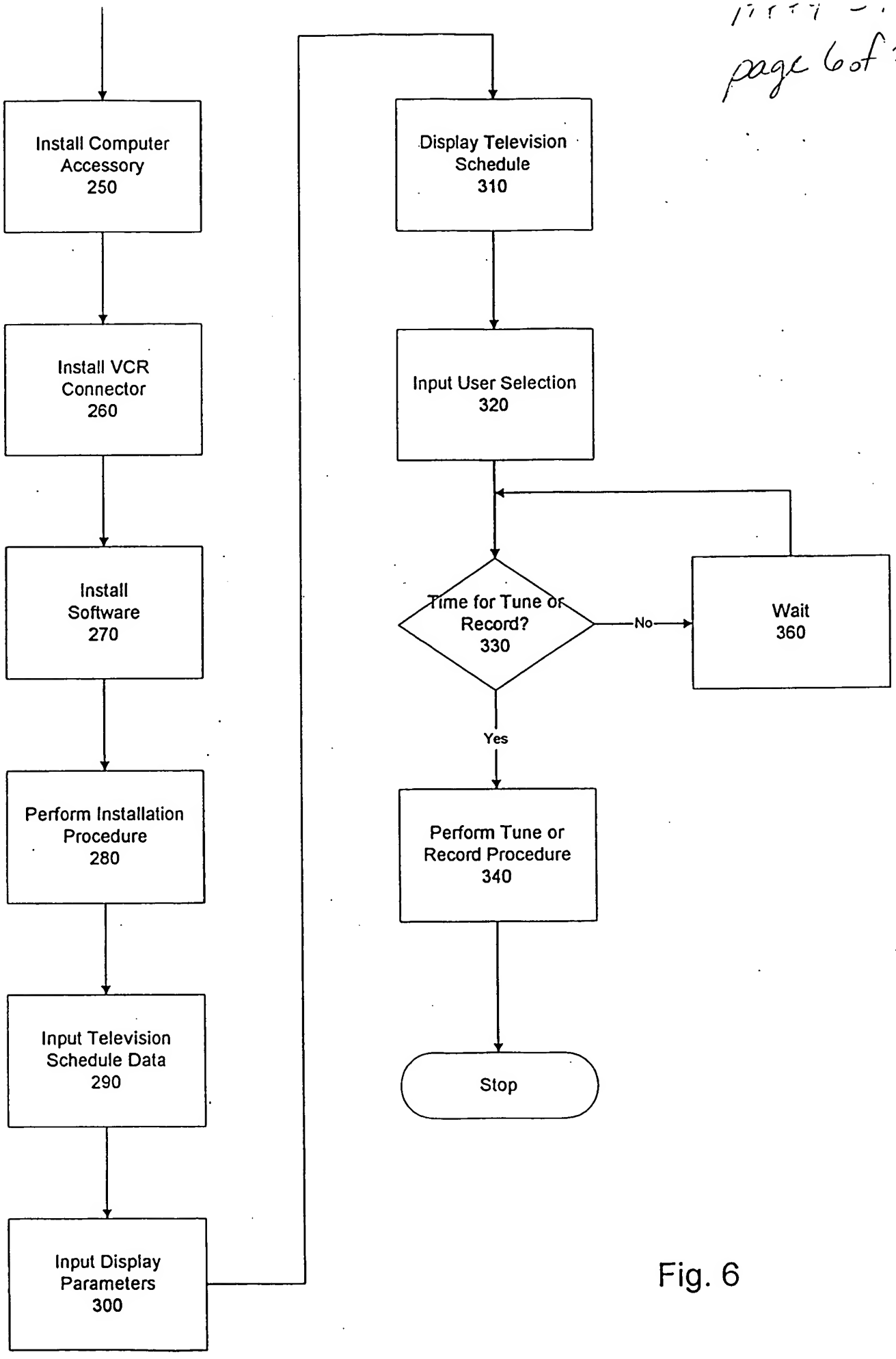
Install Computer Accessory 250
Install VCR Connector 260
Install Software 270
Perform Installation Procedure 280
Input Television Schedule Data 290
Input Display Parameters 300
Display Television Schedule 310
Input User Selection 320
Time for Tune or Record? 330
No
Wait 360
Yes
Perform Tune or Record Procedure 340
Stop

Fig. 6

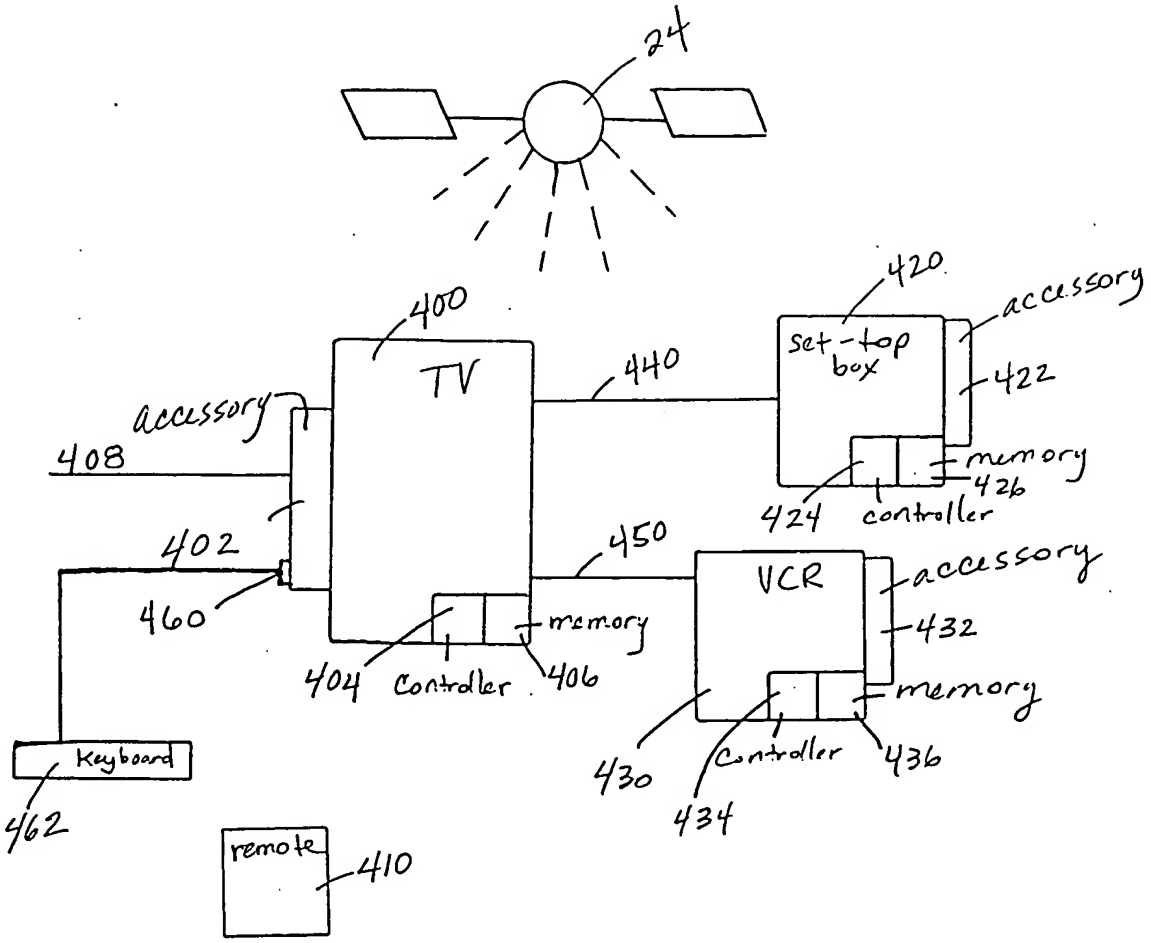

Fig. 7